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ABSTRACT

The paper reports the results of a study conducted in one Sydney (Australia) comprehensive high school. Sixty-seven Year 12 and 62 Year 11 students completed a questionnaire package measuring stress responses, goals, and academic self-efficacy. Findings show that 31% of the Year 12 and 25% of the Year 11 students reported symptoms of anxiety, depression, or both, which fell outside the normal range. More females than males reported the symptoms. The goals that students held for the Higher School Certificate were found to be predominately performance rather than mastery oriented. Performance-avoidance goals were significantly and positively correlated with stress responses. Self-efficacy was significantly and positively correlated with mastery. (Contains 15 references.) (JDM)

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The University of Sydney

STRESS AND LEARNING IN THE HIGHER SCHOOL CERTIFICATE

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Completion of the New South Wales Higher School Certificate is generally perceived as a stressful undertaking but there has been little research devoted to the nature of the stress responses experienced by students, or to its relationship with students' goals, academic self-efficacy or performance.

This study reports the results of a study conducted in one Sydney comprehensive high school. Sixty-seven Year 12 and sixty-two Year 11 students completed a questionnaire package measuring stress responses, goals and academic self-efficacy. A small focus discussion group was also conducted for each year group. Results show 31% of Year 12 and 25% of Year 11 students are reporting symptoms of anxiety, depression and/or stress which fall outside the normal range. Significantly more females than males report these symptoms. The goals that students hold for the HSC were found to be predominantly performance rather than mastery oriented. Whilst mastery was salient for Year 11 students this dropped away markedly in Year 12 as the demands for performance increased. Performance-avoidance goals were significantly and positively correlated with stress responses. Self-efficacy was significantly and positively correlated with mastery.

INTRODUCTION

In 1998 over sixty-five thousand students undertook the New South Wales Higher School Certificate (HSC). The HSC takes the form of regular assessments from fourth term in Year 11 through to an external final examination in term four, Year 12. Completion of the Certificate represents the end of a significant chapter in school students' lives and the results are used by students to gain entry to courses at technical and tertiary level. These results are also used by employers as selection criteria for employment. Competition for

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places at tertiary or technical level, rising unemployment and concerted media interest have over the last ten years or so contributed to an increasing awareness and attention paid by the public to the HSC. Consequently, a great deal of importance is placed on the outcomes of the HSC, resulting in expectations from all quarters for commitment and performance on behalf of the students. This is reinforced by the gearing of school curriculums towards this final assessment. In dealing with such widespread and often intensely felt expectations stress responses in many students are likely to result. A recent study conducted into HSC student stress found a high proportion were 'at risk' of severe psychological illness (Hodge, McCormick & Elliott, 1997). Emotional distress was reported by 42% of Year 11 and 56% of Year 12 students.

The approaches that students take to their learning, the types of goals that they adopt and their academic self-confidence will assume central roles in the final year of school. In the context of the HSC the orientations that students adopt towards the achievement of their goals may have an effect on, and be affected by, the level of stress response. In a goal theory model of motivation, Anderman and Maehr (1994) propose that affect is an outcome of contextual goal stresses and mediating beliefs. In this model contextual school goals will influence a student's personal academic goals, such as mastery, performance-approach or performance-avoidance. Personal goal orientations will also be influenced by perceptions of academic self-efficacy. These factors are seen to influence the types of learning strategies, affects, attitudes, choices and preferences adopted by a student.

Academic self-efficacy plays an important role in both goal orientations and stress responses. Self-efficacy beliefs are related to the effort invested in a behaviour, perseverance in the face of difficulties and the degree of optimism or pessimism attached to the outcome (Pajares, 1996). Self-efficacy may therefore have a positive or negative effect on students' goals. Positive perceptions of efficacy and optimism could contribute to a mastery or performance-approach

orientation to achievement. Similarly, negative perceptions of efficacy and a pessimistic outlook could contribute to a performance-avoidance orientation.

Furthermore, Bandura (1993) proposes that self-efficacy beliefs influence how much affective distress a person will experience in coping with demanding situations. Perceptions of low efficacy in exercising control can give rise to anxiety and depression, and with respect to managing academic demands, students with low self efficacy are particularly vulnerable to achievement anxiety. Low self-efficacy can result in avoidance of difficult tasks, low aspirations and weak commitment to goals. Bandura further suggests that teachers' self-efficacy and the culture of efficacy created by a school can have a negative or positive impact on the learning environment for students.

A large proportion of the research literature on school learning environments is devoted to goal theory, learning strategies and self efficacy (Ames & Archer, 1988; Pintrich & De Groot, 1990; Zimmerman & Martinez-Pons, 1990). Mastery and performance orientations to the achievement of goals has been developed into a hierarchical model of approach and avoidance (Elliott & Church, 1997). With a mastery goal orientation students focus primarily on mastering the learning tasks involved. With a performance goal orientation students focus primarily on performance outcomes and the results of these outcomes in relation to other students. In this model performance goal orientations can have positive outcomes for students when they are influenced by high competency expectancies and a desire for achievement. Elliott and Church (1997) found that a performance goal was found to enhance graded performance when the orientation was one of approach rather than avoidance. Achievement with a performance approach goal was found to be based on high achievement motivation, low fear of failure and high expectations of competence. In contrast, students adopting a performance avoidance orientation exhibited fear of failure, low expectancies of competence and poor performance. Mastery goals, as

expected, were based on intrinsic motivation and high competence expectancies.

Goal orientation can also have a negative impact which extends beyond the achievement domain and into personal adjustment and well-being. The relationship between fear of failure and achievement goals and subjective well-being amongst performance avoidance oriented students has been found to have a deleterious effect on their satisfaction with their progress, self-esteem and life satisfaction (Elliot & Sheldon, 1997).

The stress response has been acknowledged as a factor in students' learning and performance in the literature, and it occupies a place in models developed thus far. However, research has largely ignored the role that stress may be playing in the HSC. A review of the literature shows studies investigating students' expectations of the HSC (Batten, 1988), quality of school life and students' achievements on the HSC (Mok & Flynn, 1997), and the effects of individual school environments on Year 12 students' approaches to learning (Ramsden, Martin & Bowden, 1989). Apart from the Hodge et al. (1997) study into HSC stress there appears, however, to be little published research on the role of stress with respect to students' goals and perceptions of academic self-efficacy in the HSC.

This paper reports the results of a study which was conducted in a Sydney high school in 1998 investigating students' stress, goals, self efficacy and learning strategies. The following research questions were developed in the light of the research literature and in the context of the HSC:

1. To what degree are students experiencing stress responses?
2. What sorts of personal goal orientations do students have?
3. What is the relationship between stress responses, goal orientations and academic self-efficacy?

METHOD

Sample

Students from Years 11 and 12 in a comprehensive high school in a middle class area in Sydney participated in the study. Sixty-seven students from Year 12 (40 males; 27 females) and sixty-two students from Year 11 (32 males; 27 females) took part.

Instruments

A questionnaire package consisted of the following:

1) Patterns of Adaptive Learning Scale (Midgley, Maehr, Hicks, Roeser, Urdan, Anderman & Kaplan, 1996) and Motivated Strategies for Learning Questionnaire (Pintrich & De Groot, 1990) were used to measure students' goals and self efficacy.

2) Stress responses were measured using the Depression Anxiety Stress Scales (DASS) (Lovibond & Lovibond, 1995).

3) Students' attitudes to personal goals, and perceptions of their parents' and teachers' goals were measured using a ranking task of a pre-determined set of possible goals.

A focus discussion group was also conducted to obtain students' beliefs and attitudes about aspects of stress and goals. Four students from each year volunteered to take part.

Procedure

The questionnaire package was completed during class time. The focus groups were conducted during students' lunch time on the same day. Year 12 students data collection took place after completion of their trial HSC exams and prior to the final HSC exams. Year 11 students participated in the study in term four.

RESULTS

Stress Responses:

A total of 31% of Year 12 students and 25% of Year 11 students reported levels of depression, anxiety or stress that were scaled as being out of the normal range according to norms provided (Lovibond & Lovibond, 1995). Almost twice as many females as males in Year 12 reported these levels (44.4% compared to 22.5% respectively).

Table 1: Rates of Excessive Depression, Anxiety and/or Stress

	YEAR 11		YEAR 12	
	Males n=6	Females n=9	Males n=9	Females n=12
Mildly excessive	3	10	5	16
Moderately excessive	5	4	9	10
Severely excessive	0	1	1	0

NB. If students were out of the normal range on more than one variable (Depression, Anxiety, Stress) they are counted for each variable concerned.

Table 1 shows the rates of depression, anxiety or stress reported by students that were scaled as being out of the normal range. Many students were measured as suffering from a combination of these three states and the majority of these students appear to be suffering mild to moderate depression, anxiety and/or stress.

Table 2: Mean scores of Depression, Anxiety, Stress

Scale	Sex	Year 11	Year 12
Depression	Male	3.82	5.75
	Female	6.52	8.01
Anxiety	Male	2.77	2.65
	Female	3.96	4.96
Stress	Male	4.12	6.42
	Female	8.18	9.84

Independent groups t-tests revealed significant differences between Year 11 males and females on the stress scale ($p < .01$), and depression scale ($p < .04$), and Year 12 males and females on the stress scale ($p < .02$), depression scale ($p < .01$) and anxiety scale ($p < .01$). The only significant difference within sex-between years was males on the stress scale ($p < .03$).

Goals

Ranking of goals: students were asked to rank from 1 (most important) to 7 (least important) a list of possible goals for the HSC. These were:

* to get as high a TER/UAI as possible (TER)
* to learn things (Learn)
* to just survive (Survive)
* to get enough marks to get in to a particular course (Course)
* to learn skills that will set one up for the future (skills)
* to study hard (Study)
* to have fun (Fun).

Students were asked to rank these from a personal perspective as well as from what they thought their parents' goals might be for them and what they thought their teachers' goals might be for them.

FIGURE 1

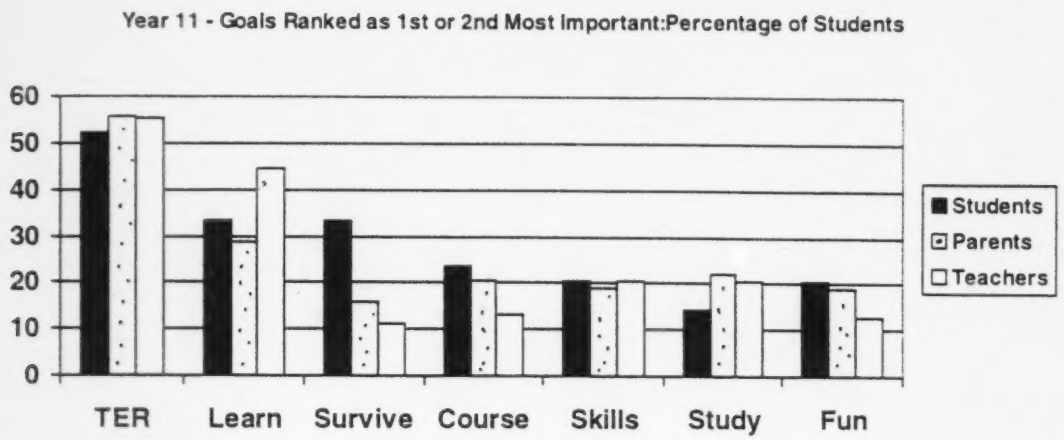

FIGURE 2

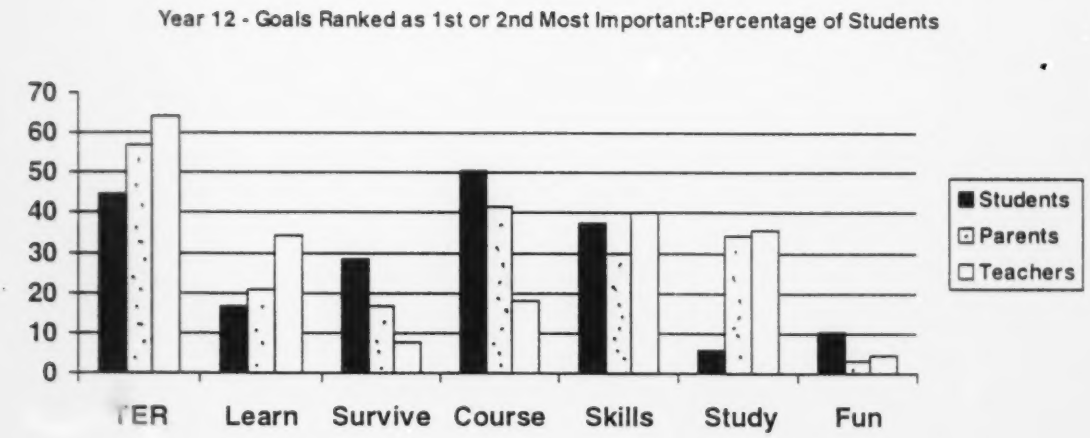

Figure 1 shows that Year 11 students ranked a high TER/UAI and learning things as the first or second most important goals from all three perspectives. They saw surviving the HSC as important as learning things, but did not indicate a similar belief on behalf of their parents or teachers.

Figure 2 shows that Year 12 students ranked getting a TER/UAI and getting enough marks for entry to a particular course as the first or second most important goals from both their personal and parents' perspective. Of significance here is the fact that the mastery-related goal of learning things, which assumed importance in Year 11, is much less important in Year 12. Thus, motivation in Year 12 appears to be very much more performance driven. Students in Year 12 ranked their teachers' first or second most important goals as a high TER/UAI and learning skills that will set one up for the future.

Year 12 students indicated that surviving the HSC was more important than studying for it, whereas they believed their parents and teachers viewed studying as more important. Whilst studying hard was still very low on their list of personal goals more Year 11 than Year 12 students saw it as important.

Focus discussion groups: These group sessions were an opportunity to explore in more detail students' attitudes and beliefs concerning goals. Year 12 students spoke of their desire to do the best they can in their HSC. When they were asked why they needed to do their best a typical response was "So I can succeed ... to get into the course I want to". When they were asked if they were more interested in learning for learning's sake rather than getting high marks a student responded "Only if it is going to be in the HSC". Students spoke of their lack of motivation following their trial exams and volunteered that they felt far more stressed before compared to after these exams. One student commented "Now we have feedback (from the trials) you know what's happening. If the trials are like the HSC I'll be OK". Another student said "Now the trials are over there's no motivation".

An interesting theme to emerge from this focus group was students' comments concerning the possible outcomes of the HSC. They said "There's always other options, the HSC's not the end of the world", "It's not the be all and end all". These may be self-soothing type strategies employed by students to cope with pressure and relieve distress.

When questioned about their level of confidence in achieving their goals the students said they did not feel confident and that "you have low expectations so you're not disappointed". When asked if this confidence varies from subject to subject a student said "I do my other work because I'm good at that. Other subjects that you don't enjoy you push aside ... hate exams and don't feel confident about them". This could be interpreted as a validation of the performance-avoidance goal orientation, where it is predicted that a student will exhibit low academic self-efficacy, avoidance of tasks that may indicate low ability, negative outlook and poor performance.

Stress - Goals - Self-Efficacy Relationships

Correlations between stress responses, goals (mastery, performance-approach and performance avoidance) and self-efficacy were carried out for sex and year.

Figure 3: Correlations - **Females** and Males: Year 11

	Depress	Anxiety	Stress	Self Eff.	Mastery	Perf. App.	Perf. Avoid.
Depress		.79**	.59**	.07	-.02	.17	.31
Anxiety	**.29**		.67**	.09	.05	.09	.51**
Stress	**.76****	**.29**		-.04	.33	.20	.29
Self-Eff.	**-.54****	**-.29**	**-.38***		.40*	.21	-.29
Mastery	**-.35**	**-.12**	**-.24**	**.77****		.34*	-.19
Perf. App.	**.09**	**.24**	**.12**	**.02**	**.16**		.29
Perf. Avoid.	**.21**	**.13**	**.14**	**.06**	**.06**	**.33**	

*p<.05 ** p<.01

Figure 4: Correlations - **Females** and Males: Year 12

	Depress	Anxiety	Stress	Self Eff.	Mastery	Perf. App.	Perf. Avoid.
Depress		.70**	.72**	-.26	.06	-.11	.27
Anxiety	.64**		.81**	-.13	.18	.13	.56**
Stress	.72**	.79**		-.10	.18	.03	.47**
Self-Eff.	-.37	-.20	-.24		.45**	.14	.05
Mastery	-.12	-.00	.09	.60**		-.05	.09
Perf. App.	.42*	.10	.13	.03	.02		.15
Perf. Avoid.	.39*	-.01	.07	-.40*	-.29	.58**	

*p<.05 **p<.01

For students in both Years 11 and 12 it will be observed from Figures 3 and 4 that stress is strongly correlated with depression and anxiety for male and female students. Importantly, for male students in Years 11 and 12 quite strong relationships are found between those affective factors and debilitating performance-avoidance goals. For female students, however, that is not the case except for the significant relationship between depression and performance-avoidance goals in Year 12. In contrast few significant relationships may be observed between those affective factors and the more positive mastery or performance-approach goals.

Some interesting relationships are found, as well, for self-efficacy. Self-efficacy is typically negatively related to the affective measures of stress, anxiety and depression, although most co-efficients are not significant. In Year 11 female students, however, self-efficacy is significantly and negatively related to both stress and depression. For both males and females in Years 11 and 12, self-efficacy is significantly and positively correlated with mastery goal orientations that focus on learning for learning's sake (correlations range from 0.40 up to a high of 0.77). Clearly self-efficacy is a variable with strong implications for student goal orientation in education.

DISCUSSION

The results from this study show that nearly one third of Year 12 students report 'distress' following trial HSC exams and prior to final exams. More females than males report stress responses and females report a higher level of stress than males. Students participating in the focus group suggested that had data collection occurred just prior to trial exams these rates and levels of stress would have been even higher. This indicates that there may be a significant stress 'peak' prior to the trial exams with a resulting slump in motivation leading up to the final exams.

Seeking an understanding of the meanings students give to the HSC and whether or not these meanings change over the course of the final school years would help to clarify these issues. Certainly the results from this study indicate that differences exist between both males and females and Year groups on personal goals and stress responses.

Results of the ranking tasks indicates that performance goals are paramount for all students and are also perceived as being paramount by their parents and teachers. Of importance here is that students in Year 11 saw mastery goals as also being important but this particular goal drops away sharply in Year 12 as the need to perform becomes salient. This must present a considerable challenge to schools and teachers if students' motivation to learn and study is poor in their final (and arguably most important) year at school.

Students' relatively high ranking of surviving the HSC compared to their parents' or teachers' goals may indicate a student perception of stress in the face of high performance expectations. Whilst students' desire to avoid study in the pursuit of an optimal TER/UAI goal could be interpreted as a classic case of wanting their cake and eating it too, it could also be further indication of a stress response to a demanding situation.

A consistent and moderately strong relationship has been found between performance-avoidance goals and experience of stress, anxiety and depression. As the degree of stress rises through Years 11 and 12 it might be predicted that performance-avoidance goals may become more salient for many students with their orientation towards fear of failure and relatively low expectations of competence and performance. A longitudinal study following students through the course of Years 11 and 12 could throw light on that possibility. Self-efficacy, however, has been found to be strongly related to mastery goal orientation. Perhaps a way of counteracting the debilitating effects of stress will be to find ways of maintaining and even enhancing feelings of self-efficacy (Pintrich & De Groot, 1990) through the final two years of high school.

Some of the sex differences found will be of interest. Males, particularly those in Year 11, reported lower levels of stress than female students and this result mirrors the findings of Hodge et al. (1997). The reasons for this warrant further investigation. The very clear differences evident in students' responses on the Depression Anxiety Stress Scales may be due to the gender roles perpetuated in our society. Our social expectations of achievement may be delivered more firmly to females and meeting these expectations may be more firmly dealt with by way of praise for achievement and shame and criticism for failure. Alternatively, this sex difference may be an artifact of a male propensity to be defensive and under-report symptoms of stress, anxiety and depression and a female propensity to accept and admit to such emotions. Whether or not the difference is biologically mediated invokes the age old nature-nuture debate. Nevertheless an interpretation of the finding can be made through the application of Lazarus and Folkman's (1984) views on appraisal of stressful situations and resultant coping responses. It is possible that males deal with stress through rationalisation of threatening situations and defense mechanisms, such as denial, whereas females appraise such situations in a less defensive manner but have to cope with the full weight of the associated emotional responses.

This study has identified some interesting though complex relationships between student goals, feelings of self-efficacy, and the experience of stress, anxiety and depression in studying for the HSC. In further research it is planned to follow samples of students longitudinally to establish changes that take place in the target variables and to investigate interrelationships between the variables and student performance.

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